

The Role of Clinical Significance in Outcome Evaluation

Why Outcomes

(Jacobs, 2003, Ogles, Lambert, & Fields, 2002)

- Demonstrate efficacy
 - Ethical responsibility
 - Securing funding
- Evaluate current practices
 - Agency level goal attainment
 - Re-evaluate service provision/selection criteria
 - Training and personnel decisions

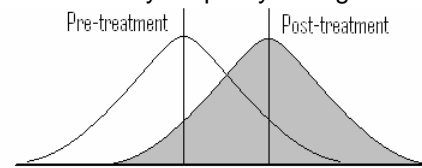
Process of Outcome Assessment

(Koch, Lewis, & McCall, 1998)

- Pre-investigation decisions
 - Standardized
 - Normative information available
- Data collection
- Data analysis
 - Typically we evaluate using statistical significance

Statistical Significance

- Based solely upon probability and group data
- Influenced by clinically extraneous factors
- Limited ability to qualify change



Early Conceptualizations of Clinical Significance

(McGlinchey, Atkins, Jacobson, 2002; Ogles, Lunnen & Bonesteel, 2001)

- Large portion of clients improving
- A change which is large in magnitude
- An improvement in everyday functioning
- Elimination of presenting problems
- Attained level of functioning cannot be discerned from non-deviant peers
- **Reliable change and recovery**
(Jacobson & Truax, 1991)

Comparison

- | Clinical Significance | Statistical Significance |
|--|--------------------------------|
| ■ Generated at the individual level | ■ Generated at the group level |
| ■ Statistically robust – sample size, outliers | ■ Statistically vulnerable |
| ■ Norm based | ■ Probability based |

Reliable Change

(Jacobson, Follette, & Revenstorf, 1984)

Does the client's reported change exceed measurement error?

- Identify a cutoff for reliable change based upon the Standard Error of Measurement for the selected outcome measure.
- Compare an individual's change score with the cutoff to determine the reliability of change.

Cutoff Establishment

- Some measures provide the cutoffs in the user's manual (e.g. The Ohio Scales; reference)
- 1) Identify the reliability coefficient (r_{xx}) and the standard deviation (s)
- 2) Compute the Standard Error of Measurement

$$SE = s * \sqrt{(1 - r_{XX})}$$

3) Compute cutoff

$$\text{Reliable Change} \geq 1.96 * 2 (SE)^2$$

Reliable Change

(Ogles, Lambert, & Fields, 2002)

Scale	Reliable Change Index
Beck Depression Inventory	9
Ohio Scales – Parent	10
Problem Severity	
Child Behavior Checklist	9
Total Problem	

Recovery

(Jacobson, Follette, & Revenstorf, 1984)

Has the client moved from a clinical level of symptom manifestation to a normative level of symptom manifestation?

- Some measures provide a clinical cutoff score
- Can be computed based upon normative data.

Methods of Determining Recovery

- 1) Two standard deviations
- 2) Calculated based upon a weighted average

$$\text{Threshold} = \frac{(s_0 M_1 + s_1 M_0)}{s_0 + s_1}$$

Recovery

(Ogles, Lambert, & Fields, 2002)

Scale	Cutoff
Beck Depression Inventory	13
Ohio Scales – Parent Problem Severity	25
Child Behavior Checklist Total Problem	42

Clinical Examples

- Data collected during the State of California's pilot test of an alternative Children's Performance Outcome System
- General Characteristics
 - Children receiving out patient services by state sponsored facilities
 - Data collected using the Ohio Scales – Short Form

Clinical Example 1

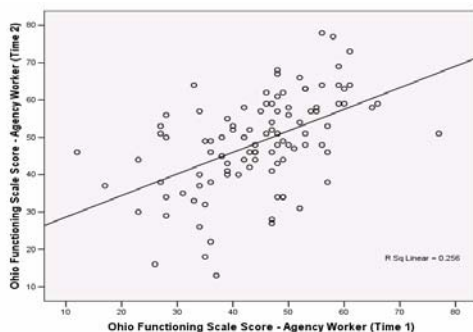
Sample Characteristics

Sample Size	101
Primary Diagnosis	Disruptive Behavioral Adjustment Disorder
Gender	76.9 % Male
Age	11.84 (3.63)
OS-A Functioning Time 1	44.50 (11.26)
OS-A Functioning Time 2	48.57 (12.86)
Change in Functioning	4.07 (12.07)

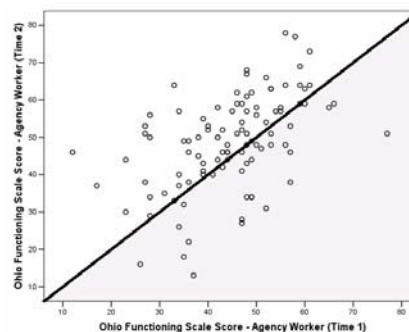
Statistical Significance Findings

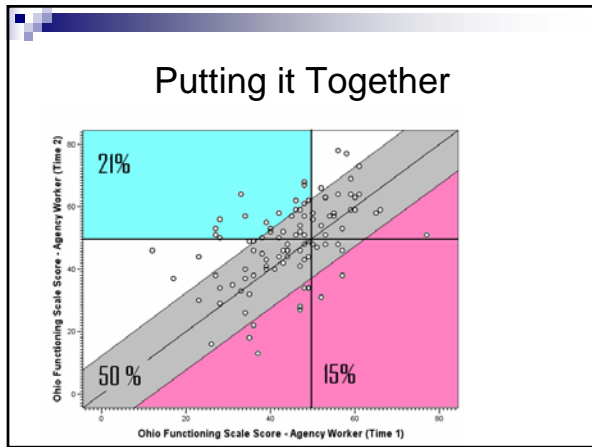
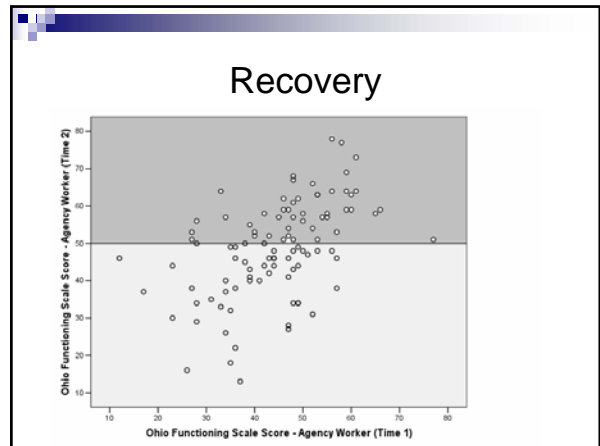
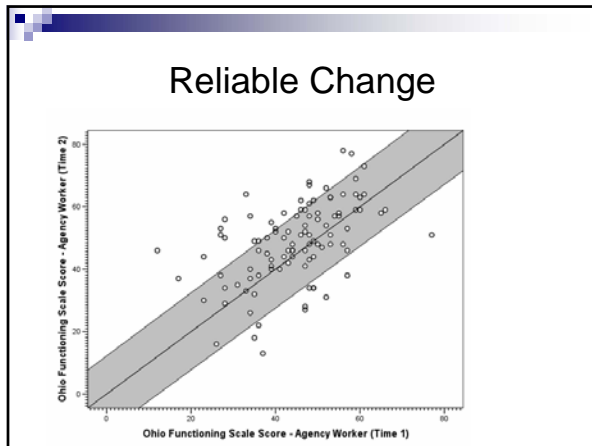
- Pre-post Functioning Mean Comparison
 - Significant Change ($t = 3.388, p = .001$)
- Effect Size Calculation
 - $d = .33$; Small to medium effect

Statistical Significance



Clinical Significance



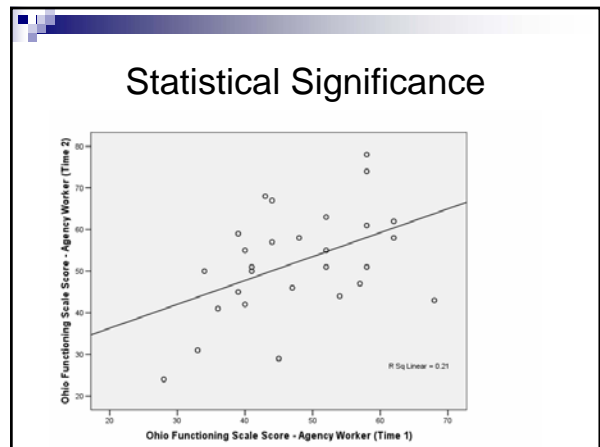


Clinical Example 2

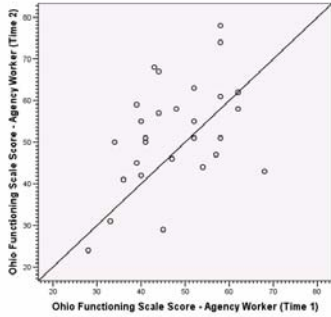
Sample Characteristics

Sample Size	28
Primary Diagnosis	PTSD
Gender	Female
Age	11.52 (3.63)
OS-A Functioning Time 1	47.61 (10.13)
OS-A Functioning Time 2	52.14 (12.69)
Change in Functioning	4.54 (12.08)

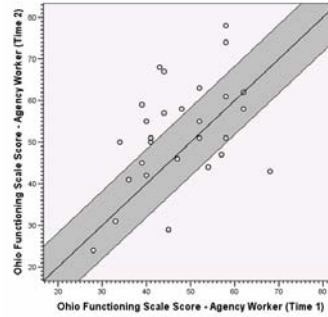
- ### Statistical Significance Findings
- Pre-post Functioning Mean Comparison
 - Significant Change ($t = -1.98$, $p > .05$)
 - Effect Size Calculation
 - $d = .39$ (Small to moderate effect)



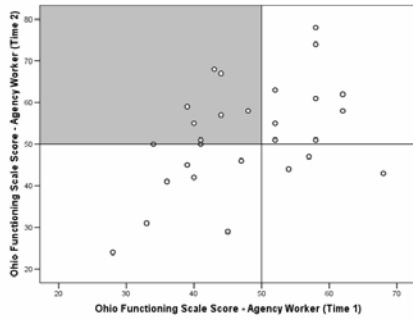
Clinical Significance



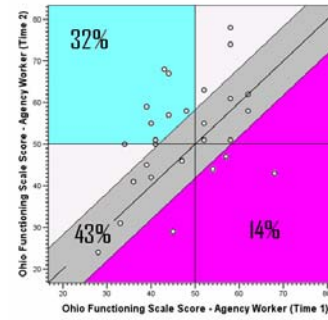
Reliable Change



Recovery



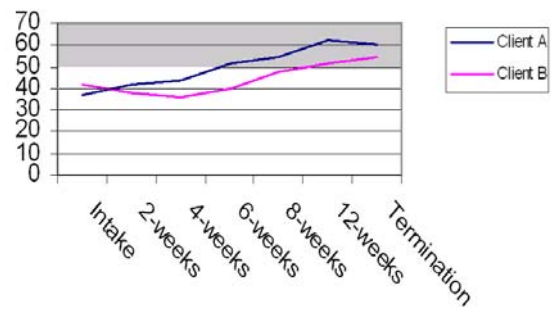
Putting it Together



Individual Clients

	Client A	Client B
Intake	37	42
2 - weeks	42	38
4 - weeks	44	36
6 - weeks	52	40
8 - weeks	54	48
12 - weeks	62	52
Termination	60	54

Individual Clients



Usefulness of Clinical Significance

- Provides clinically meaningful data
- Allows for individual and small group analysis
- Allows for preliminary investigations of negative/positive change factors

References

- Jacobs, F. H. (2003). Child and family program evaluation: Learning to enjoy complexity. *Applied Developmental Science, 7*(2), 62-75.
- Jacobson, N. S., Follette, W. C., & Revenstorf, D. (1984). Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. *Behavior Therapy, 15*, 336-352.
- Jacobson, N. S. & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12-19.
- Koch, J. R., Lewis, A. & McCall, D. (1998). A multistakeholder-driven model for developing an outcome management system. *Journal of Behavioral Health Services and Research, 25*, 151-162.

References

- McGlichney, J. B., Atkins, D. C., & Jacobson N. S. (2002). Clinical Significance methods: Which one to use and how useful are they? *Behavior Therapy, 33*, 529-550.
- Ogles, B. M., Lambert, M. J., & Fields, S. A. (2002). *Essentials of Outcome Assessment*. New York, NY: John Wiley and Sons, Inc.
- Ogles, B. M., Lunnen, K. M., & Bonesteel, K. (2001). Clinical significance: History, application, and current practice. *Clinical Psychology Review, 21*, 421-446.

Special Editions:

Journal of Consulting and Clinical Psychology (1999)
Clinical Psychology: Research and Practice (2001)